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86-06214/

NEWFOUNDLAND ENERGY REVIEW - 1985

Published under the Authority of
The Honourable J. Dinn
Minister of Mines & Energy

Prepared by Department of Mines & Energy
Energy Policy Division

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Preface

This paper, the second of a series of annual reports on energy in the Province of Newfoundland, outlines the main energy demand and supply developments and events of 1984 and 1985. In addition, it covers energy prices and conservation developments in the Province.

It is based on the latest available information from Statistics Canada and from provincial data sources including: Newfoundland and Labrador Hydro, the Petroleum Directorate and the Newfoundland Statistics Agency. Note that detailed energy consumption statistics by sector and energy form are not fully available for 1985. Where possible provisional figures are shown.

1.0 Introduction

The period under review in this publication was one of considerable change for Newfoundland particularly in the oil sector. The signing of the Atlantic Accord in February 1985 was the energy highlight of the year and at long last put to rest the question of offshore petroleum ownership. The principles of the new agreement give Newfoundland all the management, control and revenue advantages that would apply if the petroleum resources were on land.

Further, the Western Accord which was announced at the end of March and came into effect on June 1, 1985 saw the end to a regulated oil industry and provides for market based mechanisms to replace the regulated pricing system throughout Canada.

While prices remained relatively stable through 1985, continued over-supplies of crude oil weakened crude markets and prices began to fall towards the end of the year. Efforts amongst OPEC members to reach agreement to stabilize prices through production controls failed. This resulted in dramatic downward movements in crude oil prices during the latter months of 1985 and early 1986. Petroleum product consumers in Newfoundland are now experiencing welcomed price reductions.

The recent oil price declines have given rise to suggestions that the future of Newfoundland's offshore petroleum operations may be in jeopardy. Further, there is also some concern that continued oil price decreases could have negative implications for competing electric power. It is difficult to assess at this time the impact of falling oil prices since the full ramifications are unknown. However, it can be said with some certainty that the offshore petroleum resource in the Hibernia field will be developed as soon as practicable. The Newfoundland offshore petroleum operations remain the most promising frontier development in Canada. The termination of federal exploration financing assistance is however having some negative effect on new exploration in the area.

Latest available statistics of energy consumption in the province show that total energy demand increased by 2.8 percent over the 1983-1984 period. A decline of 1.5 percent in petroleum products consumption was more than offset by a 7.8 percent increase in electricity and 25.9 percent increase in wood fuel demand. There were basically two contributing factors for this overall increase in demand. Firstly, the increase in economic activity in 1984. Secondly, weather conditions in 1984 were harsher than those experienced in the previous year. Continuing conservation efforts and conversions to alternate forms of heating contributed to the reduction in petroleum products.

While detailed energy statistics by sector and energy form are not yet available for 1985, provisional energy data indicate that petroleum product demand excluding that used for electricity generation increased by 0.2 percent compared with 1984 while total electricity consumption increased by 0.7 percent over 1984.

Energy Demand by Sector

2.0 Energy Demand by Sector
2.1 Residential

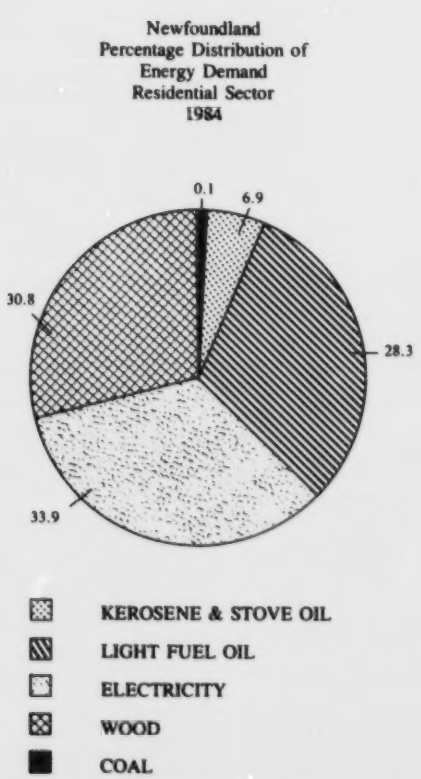
Total energy demand in the residential sector increased by 7.9 percent over 1984, rising from 21.23 petajoules in 1983 to 22.90 petajoules in 1984. Petroleum product demand decreased by 7.0 percent over the same period, falling from 8.67 petajoules to 8.06 petajoules. Electricity demand increased by 8.7 percent while wood demand increased significantly by 31.0 percent.

Table 1
Newfoundland
Total Energy Demand
Residential Sector
1983 - 1984

	1983 PJ	1984 PJ	Percentage Change 1983/84
Kerosene & Stove Oil	1.53	1.57	2.6
Light Fuel Oil	7 14	6.49	(9.1)
Total Petroleum Products	8.67	8.06	(7.0)
Electricity	7.15	7.77	8.7
Wood	5.38	7.05	31.0
Coal	0.03	0.02	(33.3)
TOTAL	21.23	22.90	7.9

Note: Brackets denote decline
Source: Statistics Canada, 57-003
Mines & Energy

Figure 1



A major factor contributing to the increase in total energy demand in the residential sector in 1984 was the colder temperatures experienced, as indicated in Table 2. These colder temperatures continued throughout 1985. This, coupled with extreme dry hydro conditions experienced throughout the year, were major reasons for a dramatic increase in thermal electricity generation.

Table 2
Newfoundland
Actual Degree Days By Major Centre
1983 - 1985

	1983 Actual	1984 Actual	1985 Actual	Percentage Change 1983-84	Percentage Change 1984-85
St. John's	4601.4	4740.2	5230.7	3.0	10.4
Gander	4927.7	5148.0	5527.3	4.5	7.4
Corner Brook	4317.8	4671.3	N/A	8.2	-
Stephenville	4400.1	4720.6	5182.9	7.3	9.8
Average	4561.8	4820.0	5313.63	5.7	10.2

Note: Degree Days is the difference of the daily mean temperature from 18 °C. For example, if the daily temperature on a given day is 1 °C then 17 degree day unit's are required to attain the standard of 18 °C.
Source: St. John's Weather Station

The continuing decline in petroleum product demand can be attributed to homeowner conservation efforts and to conversions to alternative heating sources other than oil. As shown in Tables 3 and 3A, conversions to wood fuel still remains the favored option amongst homeowners. During 1984, 3,156 grants were issued under COSP for the purpose of conversion from oil to wood. A further 5,235 wood conversions were recorded for 1985.

Table 3
Newfoundland
Number of Grants Issued
CHIP & COSP Programs
1984

			Cumulatiave Total Since Program Inception	
	CHIP	COSP	CHIP	COSP
Electricity Conversions	-	231	-	722
Wood Conversions	-	3,156	-	17,214
Propane Conversions	-	1	-	14
Total Conversions	-	3,388	-	17,950
Conservation	2,567	2,480	81,098	8,061
TOTAL	2,567	5,868	81,098	26,011

Source: Energy, Mines and Resources

Table 3A
Newfoundland
Number of Grants Issued
CHIP & COSP Programs
1985

			Cumulatiave Total Since Program Inception	
	CHIP	COSP	CHIP	COSP
Electricity Conversions	-	284	-	1,006
Wood Conversions	-	5,235	-	22,449
Propane Conversions	-	19	-	33
Total Conversions	-	5,538	-	23,488
Conservation	2,270	3,763	83,368	11,824
TOTAL	2,270	9,301	83,368	35,312

Source: Energy, Mines and Resources

Historically, the above two programs have been well received by Newfoundland households. It is expected that, for 1985, they will again have played a major role in reducing petroleum product consumption in the residential sector.

To December 1985, approximately 62% of eligible households have taken advantage of the CHIP program whereas, roughly 25% of eligible households have taken advantage of COSP.

It is unfortunate, but the early demise of these programs, announced by the federal government in their 1985 budget, will have serious implications for continuing conservation efforts.

2.2 Commercial

Total energy demand in the commercial sector decreased by 4.4 percent in 1984. The most significant reduction is found in petroleum products which declined by 13.3 percent. However, electricity increased by 6.6 percent, from 4.08 petajoules in 1983 to 4.35 petajoules in 1984. Wood fuel demand in the commercial sector showed a significant increase, due largely to Newfoundland Hardwoods Ltd. taking advantage of government assisted programs to demonstrate the effective use of burning woodchips.

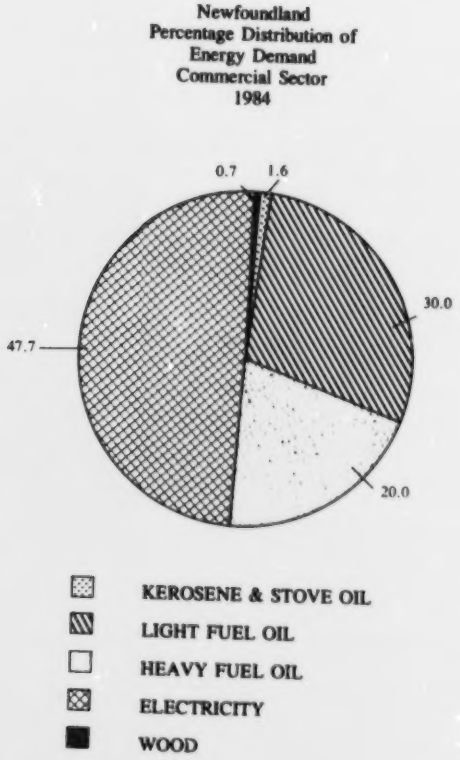
As was reported in the first annual review (1984), wood fuel heating systems are a new technology to the province. However, they are expected to be well received, as evidenced by the Newfoundland Hardwoods operation. This should therefore lead to a substantial increase in commercial wood fuel demand in the future.

Table 4
Newfoundland Total Energy Demand
Commercial Sector 1983 - 1984

	1983 PJ	1984 PJ	Percentage Change
Kerosene & Stove Oil	0.18	0.15	(16.7)
Light Fuel Oil	2.95	2.74	(7.1)
Heavy Fuel Oil	2.30	1.82	(20.9)
Total Petroleum Products	5.43	4.71	(13.3)
Electricity	4.08	4.35	6.6
Wood	0.03	0.06	100.0
Total Energy Demand	9.54	9.12	(4.4)

Note: Brackets denote decline
Source: Statistics Canada, 57-003
Mines & Energy

Figure 2



2.3 Public Administration

Total energy demand in the public administration sector fell from 2.67 petajoules in 1983 to 2.42 petajoules in 1984, a decline of 9.4 percent. Petroleum product demand fell sharply by 12.8 percent while electricity demand increased by 6.3 percent.

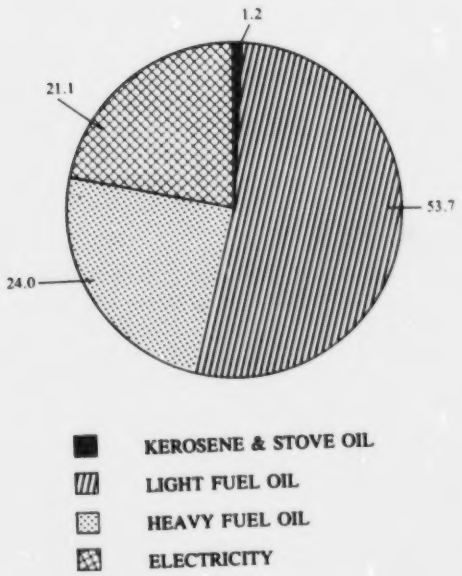
Table 5
Newfoundland
Total Energy Demand
Public Administration Sector
1983 - 1984

	1983 PJ	1984 PJ	Percentage Change
Kerosene & Stove Oil	0.06	0.03	(50.0)
Light Fuel Oil	1.63	1.30	(20.3)
Heavy Fuel Oil	0.50	0.58	16.0
Total Petroleum Products	2.19	1.91	(12.8)
Electricity	0.48	0.51	6.3
Total Energy Demand	2.67	2.42	(9.4)

Note: Brackets indicate decline
Source: Statistics Canada, 57-003

Figure 3

Newfoundland
Percentage Distribution of
Energy Demand
Public Administration Sector
1984



2.4 Industrial

2.4.1 Mining

Total energy demand in the mining sector declined slightly during 1984, falling from 17.46 petajoules in 1983 to 17.43 petajoules in 1984, a difference of 0.2 percent. Petroleum product demand decreased by 8.3 percent while electricity demand increased by 13.5 percent.

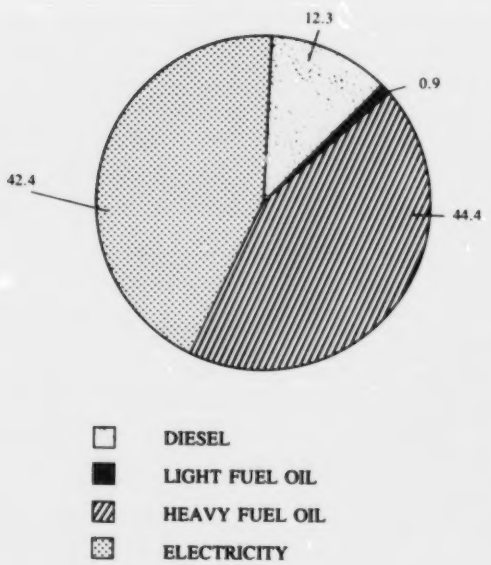
Table 6
Newfoundland
Total Energy Demand
Mining Sector
1983 - 1984

	1983 PJ	1984 PJ	Percentage Change
Diesel Fuel Oil	2.82	2.15	(23.8)
Light Fuel Oil	0.13	0.16	23.1
Heavy Fuel Oil	8.00	7.73	(3.4)
Total Petroleum Products	10.95	10.04	(8.3)
Electricity	6.51	7.39	13.5
Total Energy Demand	17.46	17.43	(0.2)

Note: Brackets indicate decline
Source: Statistics Canada, 57-003

Figure 4

Newfoundland
Percentage Distribution of
Energy Demand
Mining Sector
1984



2.4.2 Manufacturing

The manufacturing sector experienced an increase of 4.0 percent in energy demand during 1984. The demand for petroleum products fell slightly by 0.6 percent while electricity demand increased by 7.5 percent.

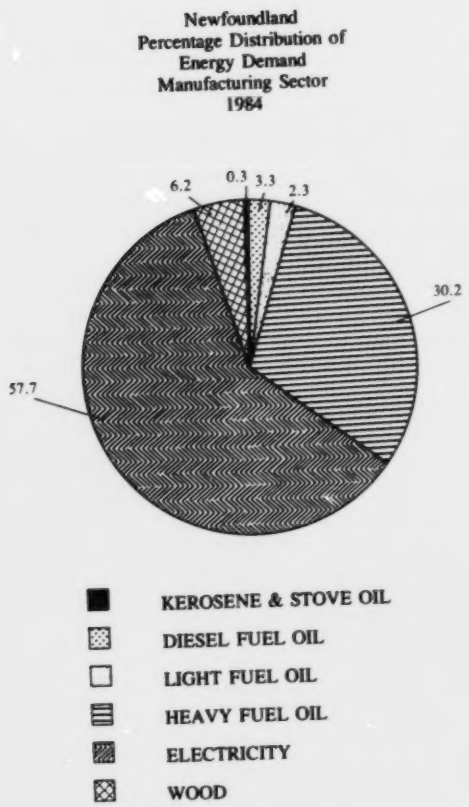
Demand for wood fuel remained unchanged in 1984. Wood fuel demand in this sector is basically demand by the pulp and paper industries. The amount of wood fuel that these companies can burn is limited to the capacity of their boilers, so any significant increase in wood fuel consumption would require boiler replacements.

Table 7
Newfoundland
Total Energy Demand
Manufacturing Sector
1983 - 1984

	1983 PJ	1984 PJ	Percentage Change
Kerosene & Stove Oil	0.03	0.06	100.0
Diesel Fuel Oil	0.65	0.62	(4.6)
Light Fuel Oil	0.34	0.43	26.5
Heavy Fuel Oil	5.73	5.60	(2.3)
Total Petroleum Products	6.75	6.71	(0.6)
Electricity	9.95	10.70	7.5
Wood	1.15	1.15	-
Total Energy Demand	17.85	18.56	4.0

Note: Brackets indicate decline
Source: Statistics Canada, 57-003

Figure 5



2.4.3 Forestry and Construction

Petroleum product demand in the forestry and construction sectors declined by 5.7 percent, from 0.70 petajoules in 1983 to 0.66 petajoules in 1984.

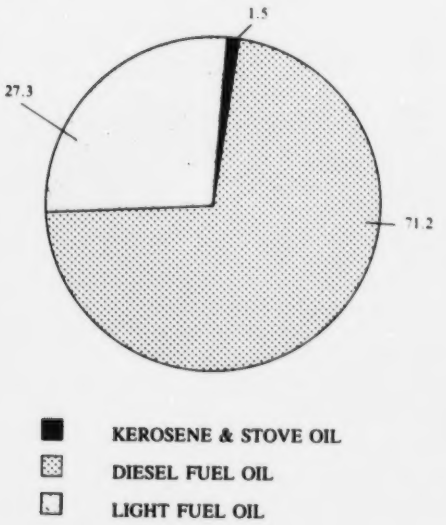
Table 8
Newfoundland
Total Energy Demand
Forestry & Construction
1983 - 1984

	1983 PJ	1984 PJ	Percentage Change
Kerosene & Stove Oil	0.01	0.01	-
Diesel Fuel Oil	0.52	0.47	(9.6)
Light Fuel Oil	0.17	0.18	5.9
Heavy Fuel Oil	-	-	-
Total Petroleum Products	0.70	0.66	(5.7)
Electricity	-	-	-
Wood	-	-	-
Total Energy Demand	0.70	0.66	(5.7)

Note: Brackets indicate decline
Source: Statistics Canada, 57-003

Figure 6

Newfoundland
Percentage Distribution of
Energy Demand
Forestry & Construction Sector
1984



2.4.4 Total Industrial

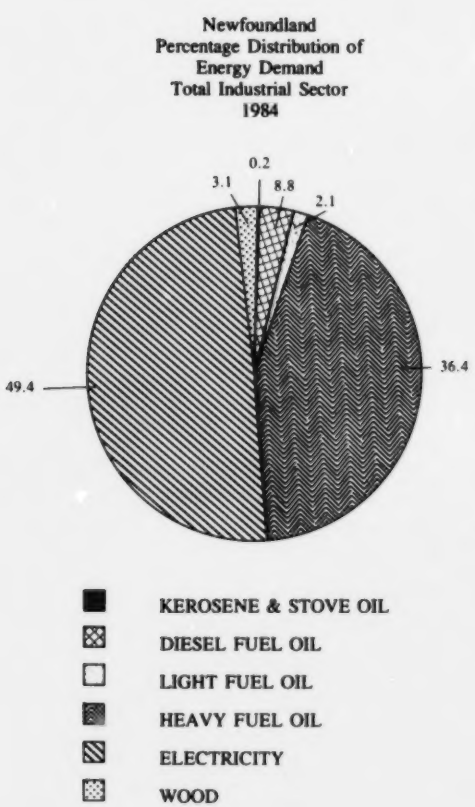
Total energy demand in the industrial sector increased slightly over 1984, from 36.32 petajoules in 1983 to 36.65 petajoules in 1984, a difference of 0.9 percent. Petroleum product demand declined by 6.7 percent while electricity demand showed growth of 9.9 percent.

Table 9
Newfoundland
Total Energy Demand
Industrial Sector
1983 - 1984

	1983 PJ	1984 PJ	Percentage Change
Kerosene & Stove Oil	0.04	0.07	75.0
Diesel Fuel Oil	4.30	3.24	(24.7)
Light Fuel Oil	0.64	0.77	20.3
Heavy Fuel Oil	13.73	13.33	(2.9)
Total Petroleum Products	18.71	17.41	(6.7)
Electricity	16.46	18.09	9.9
Wood	1.15	1.15	-
Total Energy Demand	36.32	36.65	0.9

Note: Brackets indicate decline
Source: Statistics Canada, 57-003
Mines & Energy

Figure 7



2.5 Transportation

2.5.1 Road

Total petroleum demand in the road transport sector increased by 1.3 percent over the period 1983-1984. Motor gasoline demand rose from 19.03 petajoules in 1983 to 19.08 petajoules in 1984. Diesel fuel oil increased from 9.16 petajoules to 9.47 petajoules over the same period.

Table 10
Newfoundland
Total Energy Demand
Road Transport
1983 - 1984

	1983 PJ	1984 PJ	Percentage Change
Motor Gasoline	19.03	19.08	0.3
Diesel Fuel Oil	9.16	9.47	3.4
TOTAL	28.19	28.55	1.3

Source: Statistics Canada, 57-003

2.5.2 Rail

Diesel fuel oil in the rail sector increased significantly from 0.04 petajoules in 1983 to 0.54 petajoules in 1984.

This increase is not truly representative for comparison purposes. The rail sector in Newfoundland normally purchases product in Nova Scotia. Prior to 1984 this was reported by Statistics Canada as being consumed in Nova Scotia although it was actually consumed in Newfoundland. This anomaly has since been corrected. For 1984 and subsequent years, diesel fuel consumption will reflect a more accurate picture in the rail sector.

Table 11
Newfoundland
Total Energy Demand
Rail Transport
1983 - 1984

	1983 PJ	1984 PJ	Percentage Change
Diesel Fuel Oil	0.04	0.54	1250.0
TOTAL	0.04	0.54	1250.0

Source: Statistics Canada, 57-003

2.5.3 Air

Total petroleum demand in the air transport sector increased by 1.3 percent in 1984. Aviation gasoline, which represents a small portion of petroleum demand in the air transport sector, grew from 0.13 petajoules in 1983 to 0.15 petajoules in 1984. Aviation Turbo increased to 8.60 petajoules in 1984 compared with 8.51 petajoules in 1983.

Table 12
Newfoundland
Total Energy Demand
Air Transport
1983 - 1984

	1983 PJ	1984 PJ	Percentage Change
Aviation Gasoline	0.13	0.15	15.4
Aviation Turbo	8.51	8.60	1.1
TOTAL	8.64	8.75	1.3

Source: Statistics Canada, 57-003

2.5.4 Marine

Petroleum demand in the Marine sector showed substantially high growth in 1984, increasing from 3.52 petajoules in 1983 to 4.76 petajoules in 1984.

2.5.5 Total Transportation

Overall, the transportation sector showed a modest increase in petroleum demand in 1984. Motor gasoline increased slightly by 0.3 percent. Diesel fuel oil demand increased significantly by 16.5 percent. Heavy fuel oil demand increased by 8.0 percent. Demand for aviation gasoline and aviation turbo fuel increased by 15.4 percent and 1.1 percent respectively.

Table 13
Newfoundland
Total Energy Demand
Marine Transport
1983 - 1984

	1983 PJ	1984 PJ	Percentage Changes
Diesel Fuel Oil	3.02	4.22	39.7
Heavy Fuel Oil	0.50	0.54	8.0
TOTAL	3.52	4.76	35.2

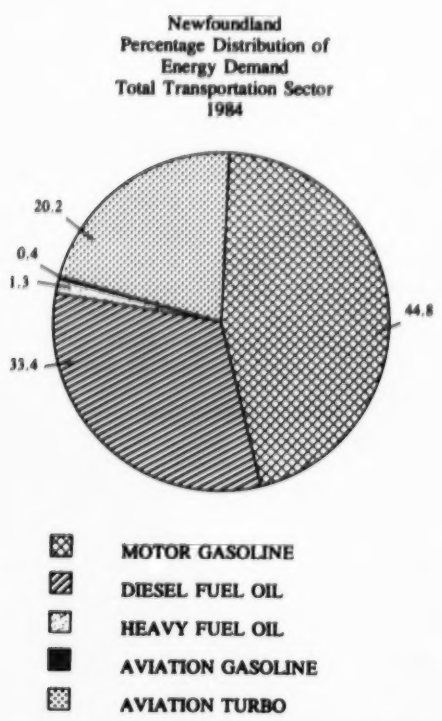
Source: Statistics Canada, 57-003

Table 14
Newfoundland
Total Energy Demand
Transportation
1983 - 1984

	1983 PJ	1984 PJ	Percentage Change
Motor Gasoline	19.03	19.08	0.3
Diesel Fuel Oil	12.22	14.23	16.5
Heavy Fuel Oil	0.50	0.54	8.0
Aviation Gasoline	0.13	0.15	15.4
Aviation Turbo	8.51	8.60	1.1
Total Petroleum	40.39	42.60	5.5

Source: Statistics Canada, 57-003

Figure 8



2.6 Total Net Energy Demand

Total net energy demand (excluding petroleum products used for electricity generation and for non-energy purposes) in the Province increased 2.8 percent over the period 1983-1984. In 1983 total net energy demand amounted to 114.35 petajoules and in 1984 increased to 117.58 petajoules. The small decline of 1.3 percent in petroleum products was more than offset by the 7.8 percent increase in electricity and 25.9 percent increase in wood fuel demand.

There were basically two contributing factors for this overall increase in demand. Firstly, the increase in economic activity in 1984. Real GDP rose by 3.6 percent between 1983 and 1984. Secondly, weather conditions in 1984 were much colder than was experienced in the previous year.

The continuing decrease in petroleum product demand can be attributed to continued conservation efforts and conversions to alternate forms of heating other than oil.

A detailed breakdown of energy consumption by sector for 1985 will not be available from Statistics Canada until late 1986 when IV Quarter 1985 figures are published. However, provisional data for overall refined petroleum product demand is available. Note that further confirmation or adjustment of this data will depend on the IV Quarter results.

The provisional figures show a marginal increase of 0.2% in overall petroleum product consumption. Demand for kerosene and stove oil decreased by 8.8 percent. Light and heavy fuel oils decreased by 2.9 percent and 3.0 percent, respectively.

Diesel fuel oil and aviation gasoline are estimated to show increases of 6.8 percent and 6.7 percent respectively.

Aviation turbo fuel is estimated to have increased by 0.5 percent

Table 15
Newfoundland
Total Petroleum
Product Demand By Fuel Type
1983- 1985

	1983 PJ	1984 PJ	(Estimated) 1985 PJ	Percentage Change 1983-84	Percentage Change 1984-85
Motor Gasoline	19.21	19.08	18.94	(0.7)	(0.7)
Kerosene and Stove Oil	1.81	1.82	1.66	0.6	(8.8)
Diesel Fuel Oil	16.52	17.47	18.66	5.8	6.8
Light Fuel Oil	12.36	11.30	10.97	(8.6)	(2.9)
Heavy Fuel Oil	17.25	16.27	15.78	(5.7)	(3.0)
Aviation Gasoline	0.13	0.15	0.16	15.4	6.7
Aviation Turbo Fuel	8.51	8.60	8.64	1.1	0.5
TOTAL	75.79	74.69	74.81	(1.5)	0.2

Note: 1) Brackets Denote Decline
2) Excludes petroleum products used for electricity generation and for non-energy purposes.
3) Demand for 1985 is estimated using Statistics Canada Refined Petroleum Product latest available data.
Source: Statistics Canada, 57-003, 45-004
Dept. of Mines & Energy

Table 16
Newfoundland
Total Net Energy Demand
By Sector and By Energy Form
1983 - 1984

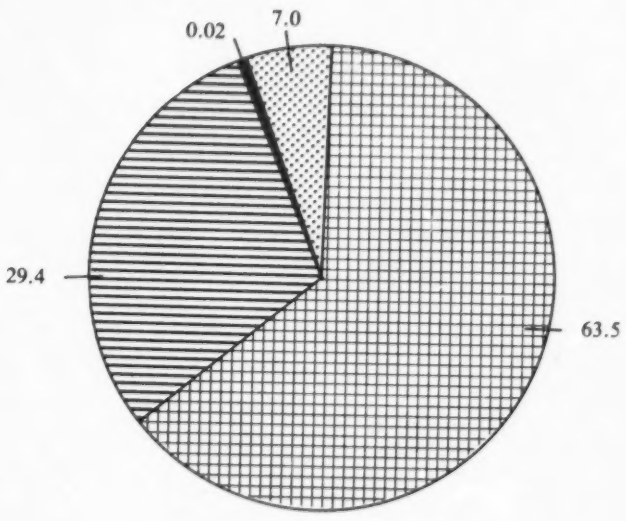
	1983 PJ	1984 PJ	Percentage Change
Residential			
Petroleum Products	8.67	8.06	(7.0)
Electricity	7.15	7.77	8.7
Coal	0.03	0.02	(33.3)
Wood*	5.38	7.05	31.0
TOTAL	21.23	22.90	7.9
Commercial			
Petroleum Products	5.43	4.71	(13.3)
Electricity	4.08	4.35	6.6
Wood*	0.03	0.06	100.0
TOTAL	9.54	9.12	(4.4)
Public Administration			
Petroleum Products	2.19	1.91	(12.8)
Electricity	0.48	.51	6.3
TOTAL	2.67	2.42	9.4
Industrial			
Petroleum Products	18.71	17.41	(6.7)
Electricity	16.46	18.09	9.9
Wood*	1.15	1.15	-
TOTAL	34.32	36.65	6.8
Transportation			
Petroleum Products	40.39	42.60	5.5
TOTAL	40.39	42.60	5.5
Own Use & Losses			
Petroleum Products	0.40	-	
Electricity	3.95	3.89	(1.5)
TOTAL	4.35	3.89	(10.6)
Total Energy Demand			
Petroleum Products	75.65	74.69	(1.3)
Electricity	32.11	34.61	7.8
Coal	0.03	0.02	(33.3)
Wood*	6.56	8.26	25.9
TOTAL	114.35	117.58	2.8

* Estimated
Note: Brackets Denote Decline
Excludes petrolem products used for electricity generation and for non-energy purposes.
Source: Statistics Canada, 57-003
Dept. of Mines & Energy

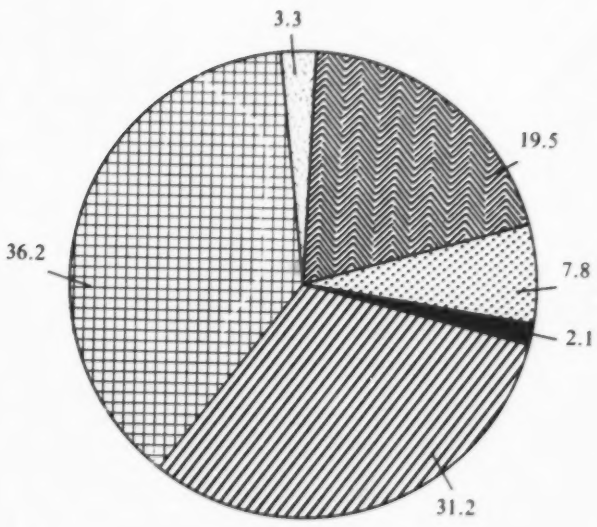
FIGURE 9

Newfoundland
Percentage Distribution
Total Net Energy Demand
1984

By Energy Form



By Sector



PETROLEUM PRODUCTS
ELECTRICITY
COAL
WOOD

RESIDENTIAL
COMMERCIAL
PUBLIC ADMINISTRATION
INDUSTRIAL
TRANSPORTATION
OWN USE & LOSSES

2.7 Petroleum Products Used in Electricity Generation

Demand for petroleum products by the utilities in the Province increased substantially during 1984. As can be seen in Table 17 petroleum products used in thermal stations in 1984 amounted to 10.72 petajoules compared to 7.89 petajoules in 1983, an increase of 35.9 percent. Diesel fuel oil, which represented about 9 percent of total petroleum products used for electricity generation in 1984, decreased by 9.0 percent over the period. Heavy fuel oil, increased by 45.9 percent, from 6.64 petajoules in 1983 to 9.69 petajoules in 1984. The dramatic increase in heavy fuel oil was a result of the additional thermal generation required at Holyrood because of low water levels during 1984.

Table 17
Newfoundland
Petroleum Products
Used in the Generation of Electricity
1983 - 1985

	1983 PJ	1984 PJ	1985 PJ	Percentage Change 1983-1984	Percentage Change 1984-1985
Diesel Fuel Oil	1.11	1.01	1.12	(9.0)	10.9
Light Fuel Oil	0.14	0.02	0.03	(85.7)	50.0
Heavy Fuel Oil	6.64	9.69	18.93	45.9	95.4
Total Petroleum Products	7.89	10.72	20.08	35.9	87.3

Note: Brackets Denote Decline
Source: Statistics Canada, 57-003
Newfoundland & Labrador Hydro

Extremely low water levels continued through 1985, resulting in even larger increases in heavy fuel and diesel fuel consumption. Heavy fuel oil increased by 95.4 percent, from 9.69 petajoules in 1984 to 18.93 petajoules in 1985.

2.8 Products Used For Non-Energy Purposes

Total products used for non-energy purposes decreased by 9.2 percent from 4.78 petajoules in 1983 to 4.34 petajoules in 1984. Demand for Naphtha specialties (mainly cleaning agents) remained unchanged over this period. Demand for asphalt and coke decreased by 1.1 percent and 17.9 percent respectively, while, demand for lubricating oils and greases increased by 6.3 percent.

For 1985, total products used for non-energy purposes increased by 18.0 percent, from 4.34 petajoules in 1984 to 5.12 petajoules in 1985. This increase is largely the result of a 58 percent increase in asphalt, from 1.73 petajoules to 2.74 petajoules in 1985. Lubricating oils and greases and coke decreased by 2.0 percent and 11.2 percent respectively.

Table 18
Newfoundland
Products Used For
Non-Energy Purposes
1983 - 1985

	1983 PJ	1984 PJ	1985 PJ*	Percentage Change 1983-84	Percentage Change 1984-85
Naphtha Specialties	0.04	0.04	0.05	-	25.0
Asphalt	1.75	1.73	2.74	(1.1)	58.4
Lubrication Oils & Greases	0.48	0.51	0.50	6.3	(2.0)
Coke	2.51	2.06	1.83	(17.9)	(11.2)
TOTAL	4.78	4.34	5.12	(9.2)	18.0

Note: Brackets Denote Decline
* Provisional figures for 1985
Source: Statistics Canada, 45-002

Energy Supply

3.0 ENERGY SUPPLY

3.1 The Atlantic Accord

On February 11, 1985 an agreement was signed between the Government of Canada and the Government of Newfoundland and Labrador detailing the terms for offshore oil and gas management and revenue sharing. The *Atlantic Accord* regards offshore oil and gas as if it were on land for revenue sharing purposes and even more important, Newfoundland will share equally in control of development and production.

Because this agreement is vitally important to Newfoundland's economic prosperity and social well-being and as a quick reference guide, it has been decided to reprint the Accord's executive summary, in its entirety, in this section.

Purposes of the Accord

The cooperative regime for offshore resource management is intended to achieve a number of objectives:

- increased energy security and economic prosperity;
- ensure that development optimizes the social and economic benefits to Canada, particularly Newfoundland and Labrador;
- Canadian jobs and industry participation on a fair and competitive basis, particularly for Newfoundland and Labrador;
- provide for revenue sharing on the same basis as if these resources were on land;
- provide for a stable and fair regime for industry;
- provide for a stable and permanent management regime recognizing the equality of both governments in management of the resource;
- rigorous protection of the environment and fishing industry;
- improved safety of offshore work.

Resource Management Regime

Canada-Newfoundland Offshore Petroleum Board

The principle of joint management will be achieved by the creation of a strong independent Board. The Board will be empowered to make decisions on all matters related to the management of offshore oil and gas resources. The Board will assume the functions and operations of Canada Oil and Gas Lands Administration (COGLA) and the Newfoundland and Labrador Petroleum Directorate (NLPD) for the Newfoundland and Labrador offshore areas.

The Board will be comprised of three members apppointed by the Government of Canada and three members appointed by the Government of Newfoundland and Labrador and a Chairman.

The Chairman of the Board will be appointed jointly by both governments. Members of the Board will not be public servants of Canada or Newfoundland.

The Board will be responsible for:

- the declaration of discoveries;
- the granting of production licences;
- regulating good oilfield practice;
- emergency powers (which may be vested in the Board's Chief Executive Officer);
- rights issuance;
- development plan approvals;
- collecting royalties; and
- making recommendations with respect to proposed amendments to the legislation and regulations under the Accord.

To ensure that the Board remains responsive to both Governments, the Accord provides for joint policy direction on certain key issues such as industrial and employment benefits, public reviews and decisions affecting the pace and mode of exploration and development.

In addition, certain fundamental decisions of the Board will be subject to review by both governments. In the event that the two governments fail to reach a consensus on a Board decision, the responsibility of approval will rest with one of the two Ministers.

With respect to decisions related to the pace and mode of exploration and the pace of production, the responsibility for approval will rest with the federal government when Canada has not attained or has lost self-sufficiency and security of supply. In periods when these conditions are achieved, approval will rest with the provincial government.

With respect to decisions relating to the mode of development, responsibility will rest with the Government of Newfoundland and Labrador, providing that such decisions do not unreasonably delay the attainment of self-sufficiency and security of supply.

Legislative Framework

Each government will within one year of the signing of the Accord introduce implementing legislation. To ensure continuity and stability for industry, the legislation will retain the provisions of existing federal legislation (Canada Oil and Gas Act and Oil and Gas Production and Conservation Act), and any regulations, insofar as they are consistent with the Accord.

Revenue Sharing

The principles of revenue-sharing between Canada and Newfoundland will be the same as those between Canada and those provinces with petroleum-related activities on land. The Accord provides for legislative measures to enable the Government of Newfoundland and Labrador to establish and collect royalties and other provincial-type resource revenues and taxes of general application. Newfoundland will receive the proceeds of the following revenues:

- royalties;
- provincial corporate income tax;
- sales tax;
- bonus payments;
- rentals and fees; and
- other forms of provincial-type revenue and taxes as may be established.

Canada-Newfoundland Offshore Development Fund

A joint offshore Development Fund of $300 million, to be grant-financed by the two governments in a ratio of 75 percent federal, 25 percent provincial, will be established to enable the province to develop the necessary infrastructure to meet the demands of oil and gas development and to ensure the province can reap the economic benefits to offshore development. Contributions to the fund will be made over a five-year period on the basis of project requirements.

Equalization Offset Payments

An equalization offset payment formula has been developed which will ensure that there will not be a dollar-for-dollar loss of equalization payments as a result of offshore revenues.

Beginning in the first year of production Newfoundland will receive offset payments from the Federal Government equal to 90 percent of a year's reduction in equalization payments. Beginning in the fifth year of production, the offset rate will be reduced by 10 percent for each subsequent year.

The equalization offset provisions of the Accord also protect Newfoundland from any future changes to the floor provisions of the Federal-Provincial Fiscal Arrangements Act, which may result in a reduction of equilization entitlements to the Province.

Public Review Process

Subject to directives from the Ministers, the Board will be responsible for determining the need for and the conducting of a public review of any prospective development. When public reviews are required the Board may:

- establish terms of reference and a timetable for the review;
- appoint a commissioner or panel;
- require a project proponent to submit a preliminary development plan, and environmental and socio-economic impact statements, including a preliminary benefits plan.

Not more than 270 days will elapse between the receipt of the plan by the Board and its decision with respect to the plan.

Oil Pollution and Fisheries Compensation Regime

An oil pollution compensation regime with respect to absolute liability for oil spill damages and debris, requiring financial security will be established.

The regime will include provisions to compensate fishermen with respect to absolute liability for oil spill and debris-related damages. The Board will also promote and monitor industry-sponsored fishermen's compensation policies for damages of a non-attributable nature.

A committee with representatives from both governments, the petroleum industry and the fishery industry will review and monitor these provisions.

Research and Development and Education and Training

Benefit plans submitted to the Board by companies active in the offshore will provide for expenditures to be made on research and development, and education and training.

Constitutional Entrenchment

Should the Government of Newfoundland and Labrador achieve the requisite support among the other provinces, the Government of Canada will introduce a mutually agreeable resolution into Parliament.

3.2 Offshore Petroleum & Gas Development

The Petroleum Directorate estimates that over $660 million was expended on offshore oil and gas exploration during 1985; an increase of $140 million over 1984. Up to January 31, 1986, 119 wells have been spudded: 27 on the Labrador Shelf, 8 on the Northeast Newfoundland Margin and 84 on the Grand Banks (Figures 10A and 10B). During 1985, operations were conducted on 17 well locations: 11 of these were new locations, and 6 were continuations of 1984 programs. In 1985, 8 rigs were under contract to 6 operators (Mobil, Husky/Bow Valley, Petro Canada, Canterra, Esso and B.P.) and 68.5 rig months of drilling operations took place. During 1986, at least five operators are expected to be active and overall activity should be equal to that in 1985.

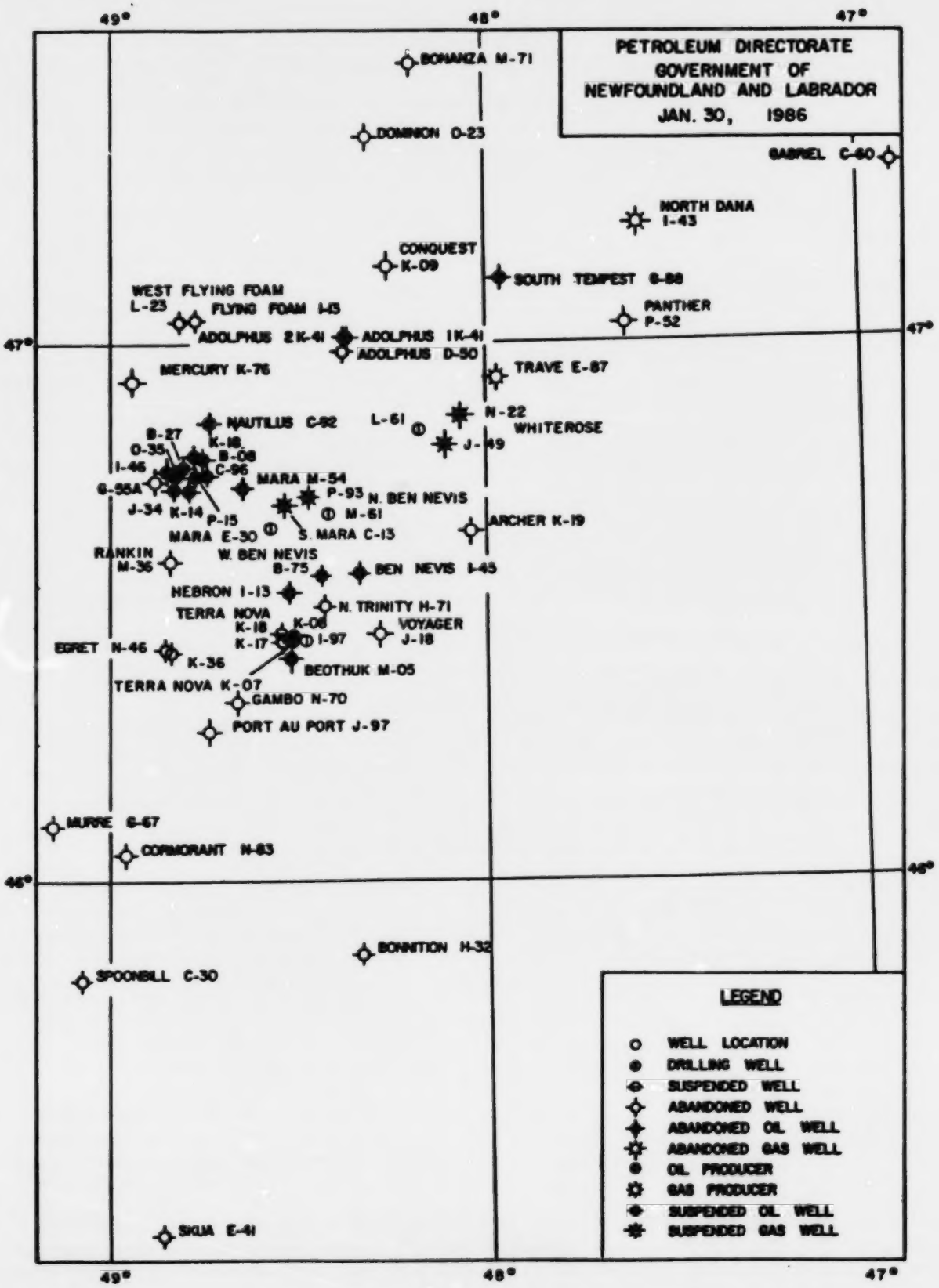
Drilling efforts in 1985 were concentrated in the Avalon Basin area of the Northern Grand Banks. Exploration activity has been focussing for several years now on this region, largely in response to the Hibernia discovery. There has been one significant discovery for every 2.5 wildcats drilled, making it one of the most attractive regions in the Canadian frontier area.

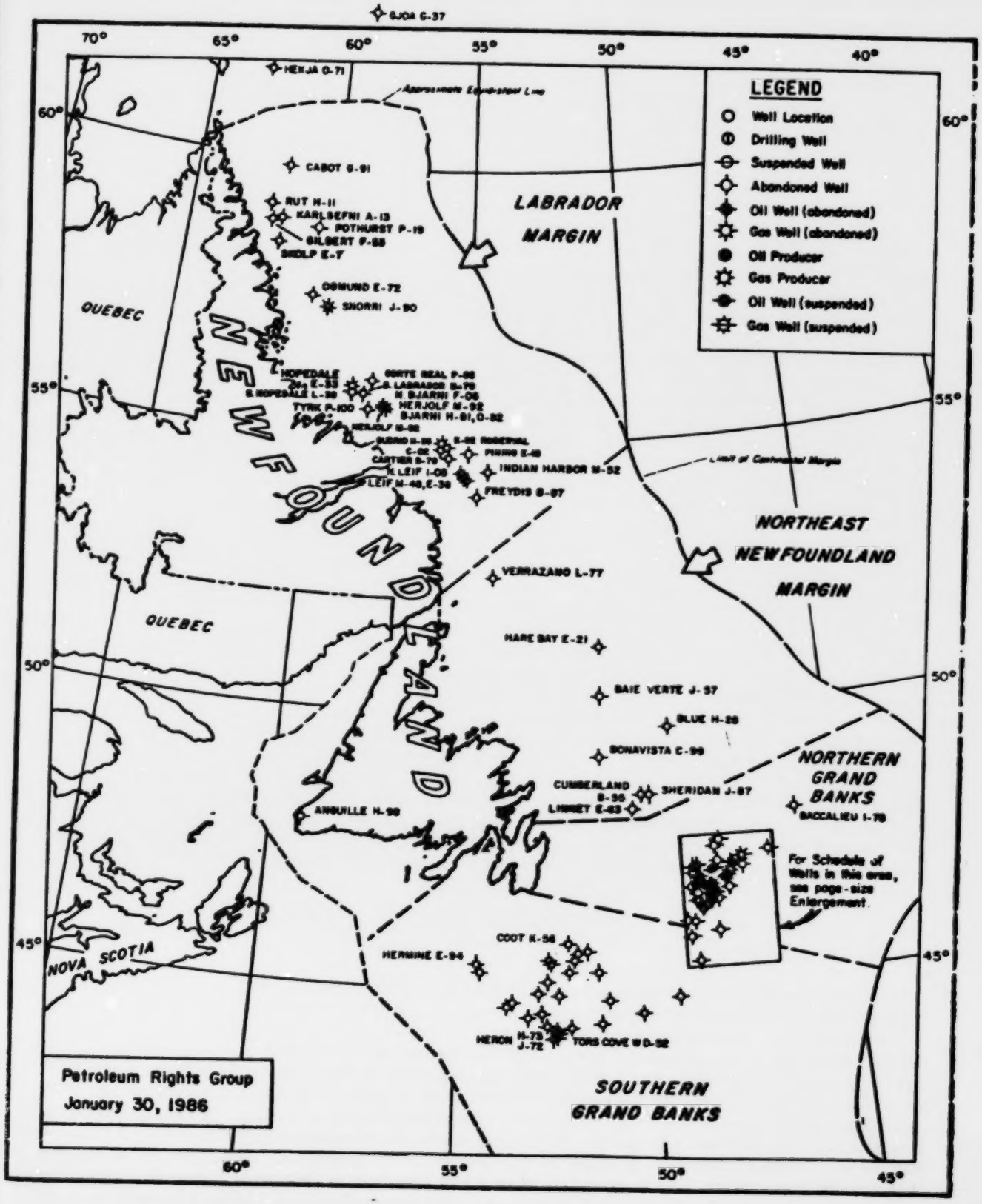
However hydrocarbon exploration also is being conducted in other regions of the Continental Margin off Newfoundland where hydrocarbon potential has yet to be well defined. 1985 saw three wildcat wells being drilled outside the lucrative Avalon Basin and there are indications that 1986 will see continued exploration in these areas.

Table 19
Significant Discoveries Offshore Newfoundland and Labrador

Well Name	Status	Spud Date	Rig Release	Operating Time	Total Depth (m)	Water Depth (m)
Mobil Gulf ADOLPKUS 2K-41	Abandoned Oil Shows	72/12/10	73/09/26	85	3658	114
Eastcan et al BJARNI H-81	Abandoned Gas Well	73/08/29	74/10/25	68	2515	140
Eastcan et al GUDRID H-55	Abandoned Gas Well	74/07/12	74/10/03	84	2838	299
Eastcan et al SNORRI J-90	Suspended Gas Well	75/07/28	76/09/08	82	3210	141
Chevron et al HOPEDALE E-33	Abandoned Gas Well	78/08/09	83/08/30	58	2069	550
Chevron et al HIBERNIA P-15	Abandoned Oil Well	79/05/27	80/01/07	207	4407	80
Mobil et al BEN NEVIS I-45	Abandoned Oil Well	80/01/10	80/09/10	244	4933	98
Petro-Canada et al NORTH LEIF I-05	Abandoned Oil Shows	80/09/14	81/10/06	103	3513	146
Mobil et al SOUTH TEMPEST G-88	Abandoned Oil Well	80/09/16	81/04/28	225	4675	158
Petro-Canada et al NORTH BJARNI F-06	Abandoned Gas Well	80/09/27	83/09/17	78	2812	150
Mobil et al HEBRON I-13	Abandoned Oil Well	81/01/14	81/09/13	242	4723	94
Mobil et al NAUTILUS C-92	Abandoned Oil Well	81/09/29	82/07/16	238	5116	84
Mobil et al NORTH DANA I-43	Abandoned Gas Well	82/12/13	84/01/17	399	5303	219
Petro-Canada et al TERRA NOVA K-08	Suspended Oil Well	83/08/02	84/06/11	227	4500	94
Husky/Bow Valley et al TRAVE E-87	Abandoned Gas Well	83/11/12	84/06/26	142	3987	138
Mobil et al SOUTH MARA C-13	Abandoned Oil/Gas Well	84/03/21	84/10/18	212	5034	95
Husky-Bow Valley et al WHITEROSE N-22	Abandoned Oil/Gas Well	84/06/27	85/01/04	192	4628	120
Mobil et al MARA M-54	Abandoned Oil Well	84/10/21	85/05/14	132	4446	88
Canterra PCI et al Beothuk M-05	Abandoned Oil Well	84/11/05	85/01/25	81	3779	93
Husky-Bow Valley et al N. BEN NEVIS P-93	Abandoned Oil/Gas Well	84/12/18	85/11/01	240	5197	99

Source: Newfoundland and Labrador Petroleum Directorate


PETROLEUM DIRECTORATE
GOVERNMENT OF
NEWFOUNDLAND AND LABRADOR
JAN. 30, 1986
49°
48°
47°
46°
BONANZA M-71
DOMINION O-23
GABRIEL C-60
NORTH DANA I-43
CONQUEST K-09
SOUTH TEMPEST B-88
WEST FLYING FOAM L-23
FLYING FOAM I-13
PANTHER P-52
ADOLPHUS 2K-41
ADOLPHUS 1K-41
ADOLPHUS D-50
MERCURY K-76
TRAVE E-87
NAUTILUS C-92
L-61
N-22
WHITEROSE
J-49
B-27
K-18
O-35
B-08
I-46
C-96
MARA M-54
G-55A
P-93
N. BEN NEVIS
J-34
K-14
P-15
M-61
MARA E-30
S. MARA C-13
ARCHER K-19
RANKIN M-36
W. BEN NEVIS
B-75
BEN NEVIS I-45
HEBRON I-13
N. TRINITY H-71
TERRA NOVA K-18
K-06
K-17
I-97
VOYAGER J-18
EGRET N-46
K-36
BEOTHUK M-05
TERRA NOVA K-07
GAMBO N-70
PORT AU PORT J-97
MURRE G-67
CORMORANT N-83
BONNITION H-32
SPOONBILL C-30
SIGUA E-41
LEGEND
WELL LOCATION
DRILLING WELL
SUSPENDED WELL
ABANDONED WELL
ABANDONED OIL WELL
ABANDONED GAS WELL
OIL PRODUCER
GAS PRODUCER
SUSPENDED OIL WELL
SUSPENDED GAS WELL


GJOA G-37
HEKJA O-71
Approximate Equidistant Line
CABOT G-91
RUT H-11
KARLSEFNI A-13
POTHURST P-19
GILBERT F-88
SKOLP E-7
OSMUND E-72
SKORRI J-90
HOPEDALE
E-33
HOPEDALE L-39
TYRK P-100
BJARNI H-81, O-82
HERJOLF M-92
INDIAN HARBOR M-52
FREYDIS B-87
VERRAZANO L-77
HARE BAY E-21
BAIE VERTE J-37
BLUE H-28
BONAVISTA C-99
CUMBERLAND B-55
SHERIDAN J-87
LINNET E-83
ANGUILLE H-98
BACCALIEU I-78
COOT K-56
HERMINE E-94
HERON H-73
J-72
TORS COVE WD-92
LABRADOR MARGIN
NORTHEAST NEWFOUNDLAND MARGIN
NORTHERN GRAND BANKS
SOUTHERN GRAND BANKS
NEWFOUNDLAND
QUEBEC
QUEBEC
NOVA SCOTIA
LEGEND
Well Location
Drilling Well
Suspended Well
Abandoned Well
Oil Well (abandoned)
Gas Well (abandoned)
Oil Producer
Gas Producer
Oil Well (suspended)
Gas Well (suspended)
For Schedule of Wells in this area, see page-size Enlargement.
Petroleum Rights Group
January 30, 1986
70°
65°
60°
55°
50°
45°
40°
60°
55°
50°
45°

Seismic surveys during 1985 resulted in the acquisition of 18,277 kilometers of reflection seismic; the total collected since 1966 now totals 524,900 kilometers.

To date exploration effort has resulted in 20 significant hydrocarbon discoveries (Table 19) with four having been drilled in 1985 as follows:

Whiterose	Gas/Condensate and Oil
Beothuk	Oil
Mara	Oil
North Ben Nevis	Gas/Condensate and Oil

Delineation drilling has been initiated or is ongoing on six of the significant discoveries to assess the potential for development i.e. Terra Nova, Hebron, Ben Nevis, Whiterose, North Ben Nevis and Mara. Since January, 1986 four wells were being drilled on significant discovery locations with one delineation well each on Whiterose and North Ben Nevis and one wildcat well each on Mara and Terra Nova. New drilling has been started on the Fortune, St. George, Lancaster, Kyle and Panther locations.

To date only the Hibernia discovery is deemed to have commercial capability. The Canada-Newfoundland Offshore Petroluem Board as well as the Provincial and Federal Governments are presently studying the report resulting from the Hibernia Environmental Assessment Review Panel, before deciding how the project will proceed. This process culminates a five year preparation period by Mobil and its partners to get approval to develop the Hibernia field. Approval of the development plan was announced on June 24, 1986. The construction phase of the project will extend over a seven year period into 1992. Between 60 and 85 development wells are planned for the field with up to 70% being drilled from the concrete platform. The remainder will be drilled using semi-submersibles. Production is expected to begin in 1992 with peak production at 110,000 bbl/day.

The likelihood of additional commercial discoveries on the Grand Banks is very high. The North Ben Nevis discovery shows considerable production potential and initial reserve estimates range from 50 - 150 million barrels. Delineation drilling has started on the structure and Husky Oil considers that if results are favourable the field would be a good candidate for early development utilizing floating production systems.

The Terra Nova field has been successfully delineated by the K-07 well and a wildcat well is currently drilling to test the areal extent of the oil reservoir. Favourable results from this structure may define the reserve base required for development.

The Whiterose discovery is currently being delineated and it is hoped that further drilling may also prove the necessary reserves to justify development.

The Canada-Newfoundland Offshore Petroleum Board announced in December, 1985 that it was calling for proposals on 6 offshore parcels. These new lands are being made available to industry by an expenditure commitment bid and the exploration agreement resulting from a successful bid requires the drilling of one well per agreement within a 4 to 5 year term as well as a relinquishment of 50% of the lands at the end of the initial term.

3.3 Electricity Supply

Near record low water inflows into the reservoirs of hydroelectric facilities during the latter half of 1985 resulted in a lower than average hydroelectric production for the year. A total of 3.46 billion kilowatthours were produced, of which 2.26 billion were generated at Bay D'Espoir, 292.1 million at Hinds Lake, 513.6 million at Godaleich (Upper Salmon) and 388.6 million at Cat Arm. This low hydroelectric production was largely responsible for a 125% increase in energy production from the Holyrood oil-fired thermal station over the 1984 production level. Production from Holyrood and the gas turbine and diesel facilities totalled 1.82 billion kilowatthours. In 1985, hydroelectric generation comprised 65% of the total energy supply, thermal generation 34%, and purchases 1%. Total production for the Churchill Falls plant for the year was 34.9 billion kilowatthours which was 10.5% lower than the 39.0 billion kilowatthours generated in 1984 and 9% lower than the average for the past seven years of 38.4 billion kilowatthours. Sales to Hydro Quebec were 12% lower than in 1984 and 11% lower than the average for the past seven years. The domestic and industrial sales in Labrador totalled 2.3 billion kilowatthours, or an increase of 4.5% over 1984.

Production from Hydro's generating facilities on the Island of Newfoundland totalled 5.28 billion kilowatthours (gross) during 1985, a 7.6% increase over the previous production record set in 1984. In addition to this, 35.7 million kilowatthours were purchased, primarily from the Deer Lake Power Company, for a total electric energy supply of 5.32 billion kilowatthours.

On June 20, 1985 the Cat Arm hydroelectric generating station was officially opened. This plant has a total generating capacity of 127 MW and has added an average annual energy capability of 676 million kilowatthours to the Island system.

Table 20
Newfoundland
Electricity Generation
1984-1985

	1984 PJ	1985 PJ	Percentage Change
Hydro	161.11	142.68	(11.4)
Thermal	2.81	6.32	124.9
Total	163.92	149.00	(9.1)
Delivered to Other Provinces	129.76	114.61	(11.7)
Total Available to Province	34.16	34.39	0.7

Note: Brackets denote decline
Source: Statistics Canada, 57-001
Newfoundland & Labrador Hydro

Table 20A
Island Generation Station Capacities
1985

Hydro	MW
Bay D'Espoir	604
Hinds Lake	75
Upper Salmon (Godaleich)	84
Cat Arm	127
Other Hydro (Nfld. Light & Power)	82
	972
Thermal	
Holyrood	450
Gas Turbine	110
	560
Diesel	
Power Distribution District	47
Newfoundland Light & Power	15
	62
TOTAL	1594

Source: Newfoundland & Labrador Hydro Corporation
Power Distribution District
Newfoundland Light & Power Co. Ltd.

FIGURE IIA

Newfoundland
Electricity Generation Facilities
and
Transmission Lines

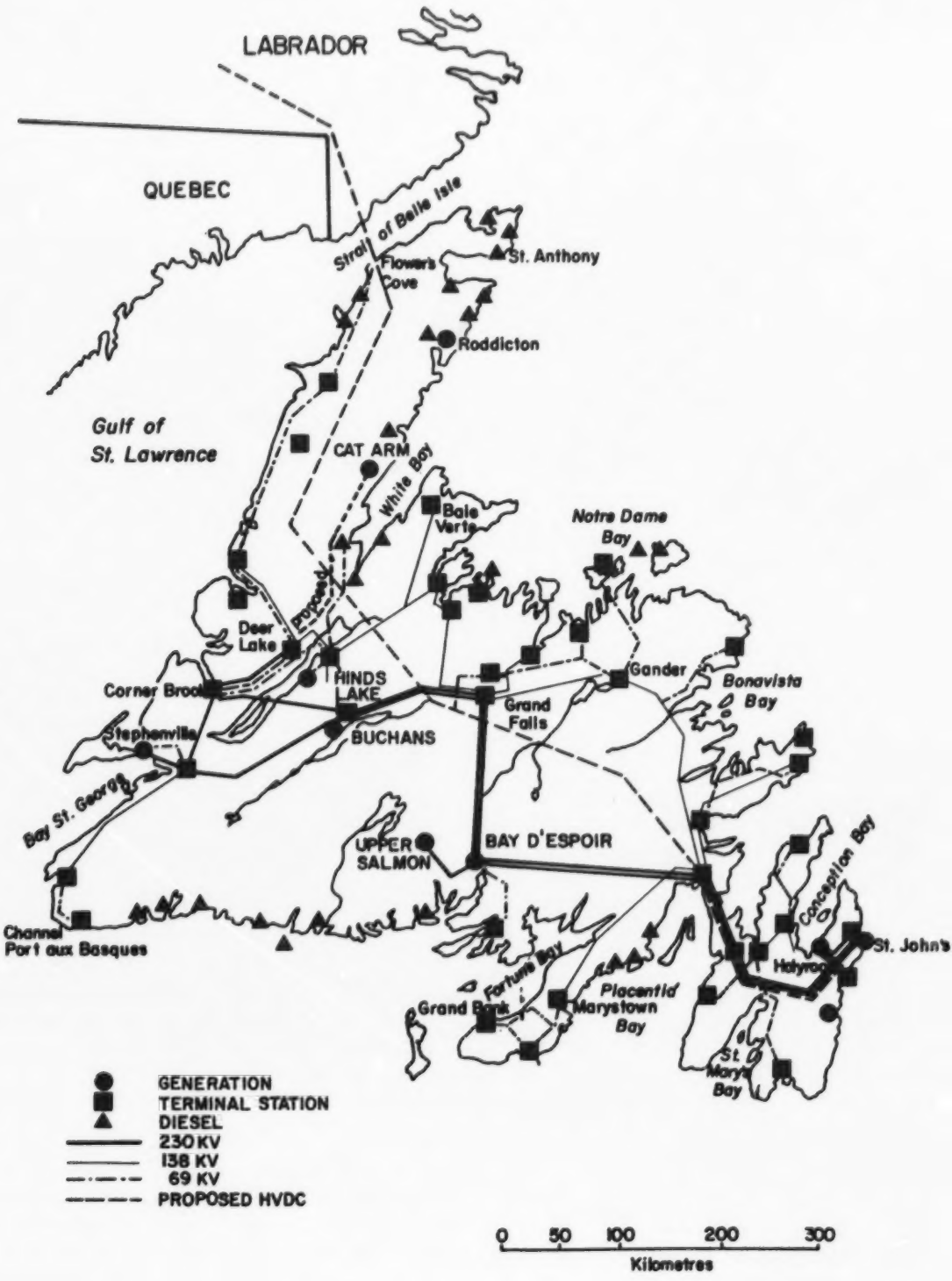
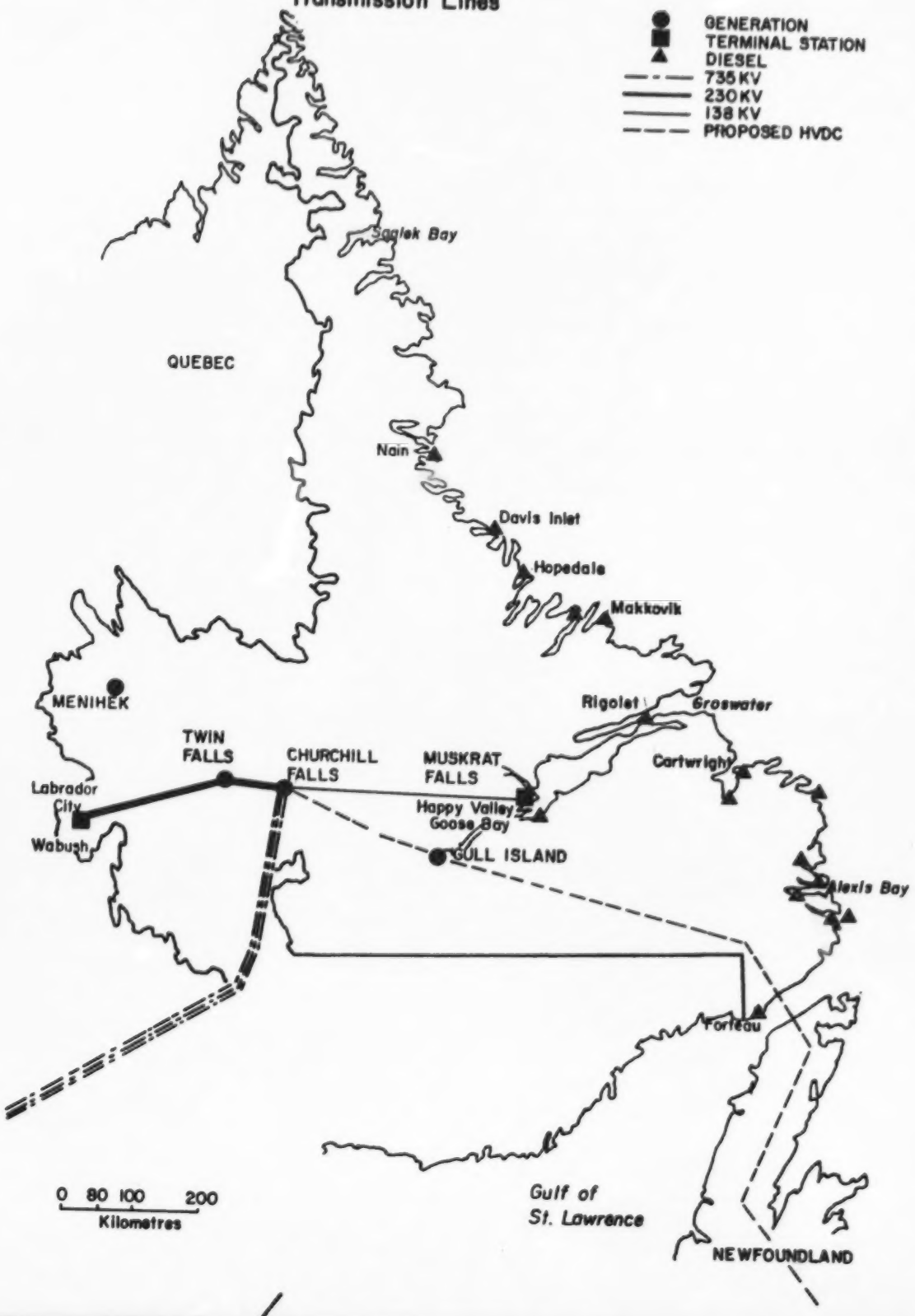


FIGURE IIB

Labrador
Electricity Generation Facilities
and
Transmission Lines



3.4 Provincial Woodfuel Supply

Prior to 1980 fuel wood represented a fairly small portion of the total volume of wood cut in the province. Since then the amount of woodfuel cut has increased steadily and now accounts for one-quarter of total wood production in the province. The sharp increase in annual fuelwood demand has given rise to concern that it may exceed available supplies in certain areas. However the Annual Allowable Cut (AAC) which specifies the amount of wood which may be cut for commercial and domestic use in each of the 19 forest management units only includes the productive forest areas and does not include the non-commerical stands. Much of the current woodfuel supply comes from hardwood stands, non-commercial stands and residuals from sawmills and logging operations. Due to the problem of not being able to closely monitor the volumes cut, the wood taken from these other sources may be wrongly included in the AAC. This tends to create an over estimate of the drain on productive forest areas.

The use of woodfuel in the commercial and industrial sectors is expected to increase in the future. To quantify the amount of wood available to these sectors, forestry personnel have carried out a supply survey. The estimates in Table 21 apply to residual wood: sawmill residues, logging residues, and stand residues. The domestic fuelwood supply has not been included in the estimates because it is accounted for in the AAC. The estimates on residues from mill and logging operations are provided on a yearly basis, while stand residues are based on the total volume available. The actual amount permitted to be cut annually from stand residues would have to be determined by the Department of Forest, Resource and Lands (for the purposes of estimating annual supply for this report a 20 year harvesting period is assumed). The Avalon and Burin Peninsulas have been excluded from the inventory because the annual allowable cut is currently being met and no new allocations are being given for commercial and industrial fuel.

The forestry department is planning more detailed studies in the central and western regions of the Province. It has also been recommended that the unit foresters include woodfuel stands in their 5 year operating and 10 year management plans.

Table 21
Newfoundland
Regional Yearly Residue Supply - 1983
PJ

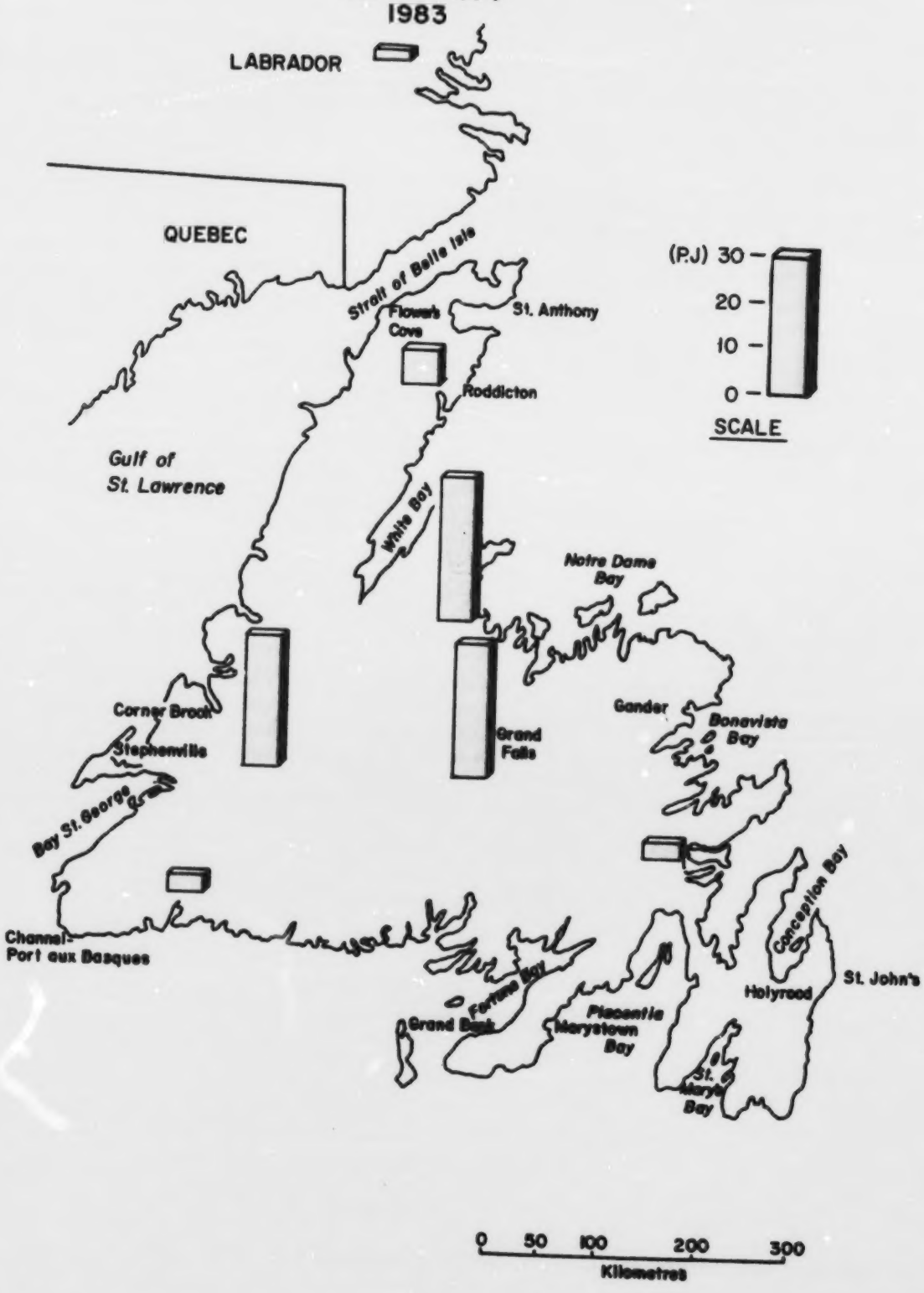
Type of Residue	East	North East	Central	West	Northern Peninsula	South	Labrador	Total
Logging	0.82	31.94	24.51	26.77	2.58	3.54	0.16	90.37
Mill	0.82	0.56	1.17	0.18	0.96	0.08	0.06	3.82
Stands*	5.23	0.19	4.16	1.72	3.98	0	0.91	16.19
TOTAL	6.87	32.69	29.89	28.66	7.52	3.62	1.13	110.38

* Assumes a 20 year harvesting life

Source: Biomass Fuel Survey, Department of Forest Resources and Lands, Report FPD-19.

FIGURE 12

Newfoundland
Regional Annual Wood
Residue Supply
1983



3.5 Peat Supply

A series of inventories 1978 to 1983 has provided much improved estimates on the location and volume of the province's peat resource. The Von Post scale of decomposition was used to classify the peat and the samples were sub-grouped into three classes H1-H4, H5-H7 and H8-H10. The H1-H4 group is normally used for horticultural purposes and the H5-H10 for fuel.

The inventory has identified approximately 1.1 million hectares of peatland or about 10% of the surface area of the Island portion of the province. This is a fairly conservative estimate as many of the small patches of peatlands (less than .5 hectares) were excluded. The criteria for the inventory of the south-west region was changed to exclude any peatland areas less than 30 hectares.

Commercial production of the province's peat reserves occurs essentially in the Southern Shore area of St. Shotts. This project is in the demonstration and development stages and was originally funded under the Canada/Newfoundland Renewable Energy Demonstration Agreement.

During 1985, 6440 metric tonnes of peat were extruded from the St. Shott's operation, almost double that of the previous year. Of this, approximately 740 metric tonnes were harvested manually. The remainder was not dried sufficiently enough to be harvested.

Table 22
Peat Production
St. Shotts
1984-1985

	1984 Metric Tonnes	1985 Metric Tonnes	Percentage Change
Extruded	3,371	6,400	91.0
Fully Produced	375	740	97.3

Source: Northland Associates

There is a tremendous amount of energy potential in the province's fuel peat reserves but only a limited amount of this can be regarded as economically recoverable. Many of the sites are either too small or not deep enough for commercial development. Other factors such as accessability, transportation and environmental concerns also influence development of fuel peat sites. For the purposes of calculating the recoverable peat reserves from the total fuel peat reserves it has been assumed that only peatlands with an area greater than 50 hectares and a minimum average depth of .95 meters be included. Table 21A outlines estimated energy value of the fuel peat reserves by region.

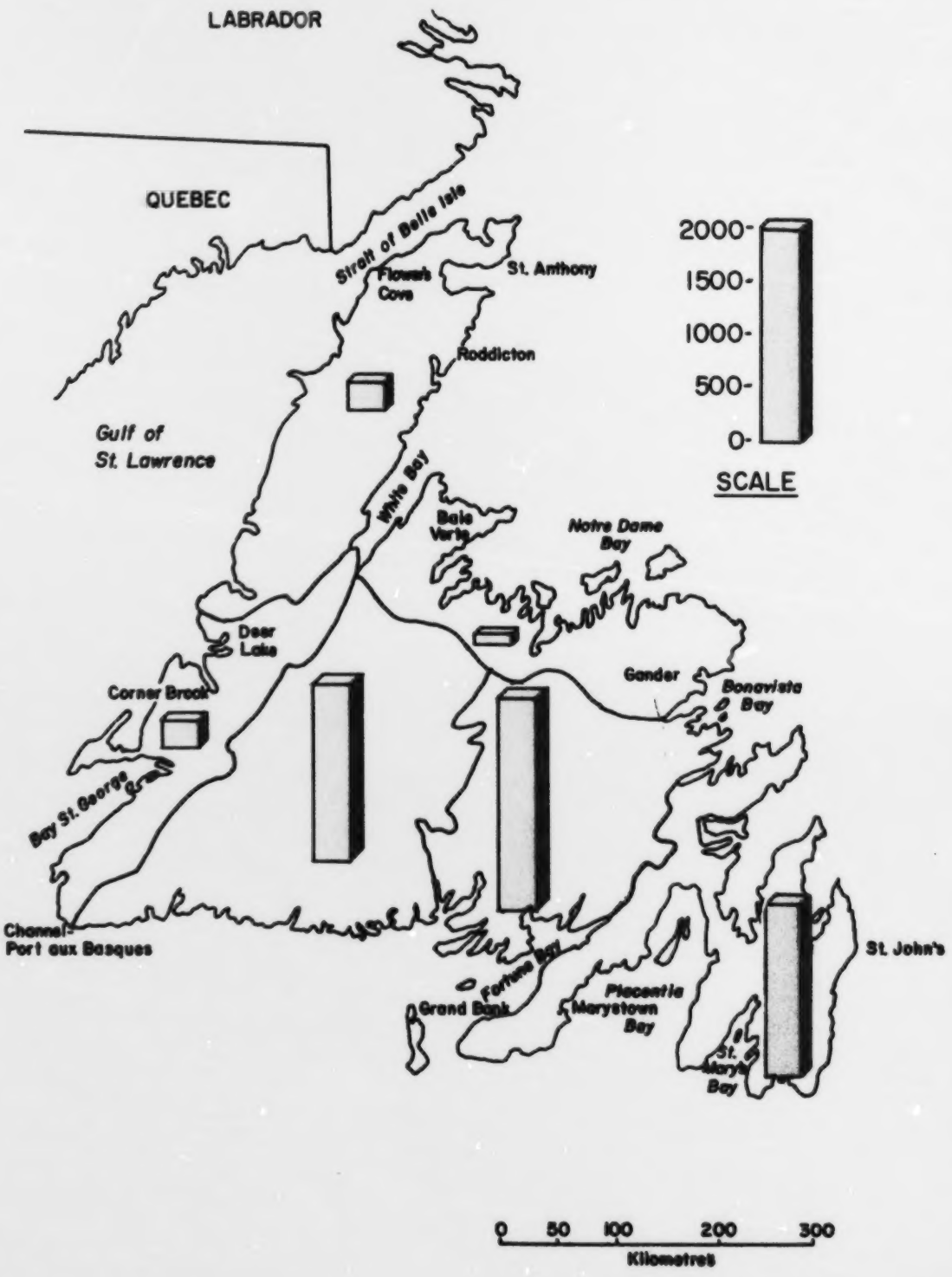
Table 22A
Newfoundland
Regional Comparison of Peat Reserves
1983
PJ

Region	Estimated Fuel Peat Reserves	Recoverable Fuel Peat Reserves
North East	1,534	74
West	1,235	246
East	4,330	1,573
North	1,658	279
South East	4,311	1,996
South West	1,900	1,615
TOTAL	14,968	5,783

Source: Newfoundland Peat Inventory, Northland Associates Ltd., 1978 - 1983.

FIGURE 13

Newfoundland
Recoverable Fuel Peat
Reserves
1983



Energy Prices

4.0 ENERGY PRICES

4.1 Petroleum Product Prices

4.1.1 Background

Over the period 1984/1985, world oil prices were, to say the least, unpredictable. Continued over supplies of crude oil weakened crude markets and a trend of falling oil prices developed with dramatic declines occurring at the end of 1985.

In an attempt to firm-up prices and regain market share, numerous meetings were held amongst OPEC members to determine production quotas and to set official prices. However, pressure from non-OPEC members such as Great Britain and Mexico had created dissention amongst OPEC itself, with the result being widespread deviation from established quotas. The OPEC members as a whole increased output in the last few months of 1985 and are now producing about 18 million bbl/day, more than 10% over their official quota. It is interesting to note that OPEC, which supplied about two-thirds of the world's demand up until 1980, has now slipped to about one-third, as OPEC followed its policy of reducing production in order to keep prices up and non-OPEC production increased.

Since deregulation of the Canadian oil industry in June 1985, Eastern Canadian refineries have stopped receiving crude from the Western provinces. All crude purchased since June and refined in Eastern Canada now consists of foreign imports. Crude, destined for Atlantic Canada in particular has come increasingly from the North Sea. Spot market values, as reflected in Canadian bench mark prices, have been rising since deregulation. It has only been since mid-December 1985 that these values have declined significantly.

Further, the agreement on the Western Accord in June 1985, in addition to deregulation, also saw the elimination of the Canadian Ownership Charge of $1.15 per barrel and the Petroleum Compensation Charge of $3.76 per barrel. Federal sales and excise taxes are now charged at a flat rate and are adjusted on a quarterly basis.

4.1.2 Petroleum Product Prices in Newfoundland

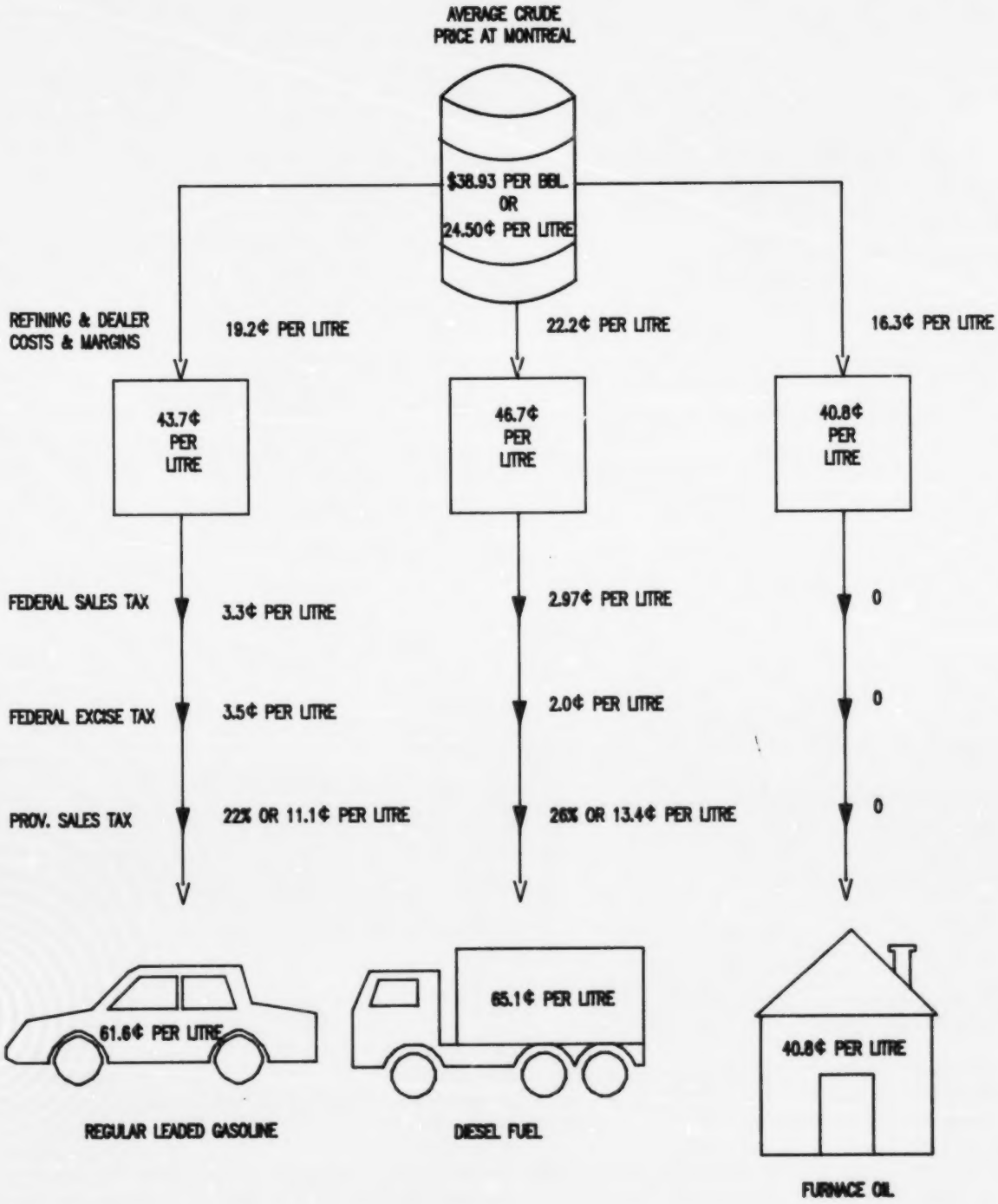
The overall impact of petroleum product prices for this Province over the period 1984 to 1985 stemming from the above events can be seen in Tables 23 to 25. These tables were taken from a report 'Annual Costs of Fuel and Utilities Newfoundland and Labrador, 1985' published in November of 1985 by the Department of Mines and Energy and the Newfoundland Statistics Agency. This report has been published annually for the past several years and is based on a survey that is carried out in approximately 58 communities in Newfoundland & Labrador.

Table 23
Weighted Average Prices
of Petroleum Products
By Census Division
April 1984
(cents/litre)

CENSUS DIVISIONS	REGULAR GASOLINE	UNLEADED GASOLINE	DIESEL FUEL OIL	FURNACE OIL	STOVE OIL
Avalon Peninsula	55.8	57.4	55.2	36.9	39.1
Burin Peninsula	55.9	57.7	58.1	37.3	39.1
South Coast	57.1	59.0	58.5	38.3	40.2
St. Georges	55.3	56.9	57.5	36.8	39.1
Humber District	55.4	57.2	56.5	36.9	39.0
Central Newfoundland	55.1	56.7	56.7	37.2	39.2
Bonavista/Trinity	56.1	58.9	58.6	37.3	39.2
Notre Dame Bay	57.4	59.6	57.0	38.5	40.5
Northern Peninsula	57.8	59.6	58.2	38.9	41.3
Labrador	59.1	58.5	N/A	38.4	46.7
Island Average	56.0	57.8	56.4	37.3	39.4
Provincial Average	56.2	57.9	N/A	37.4	39.6

Source: Annual Cost of Fuel and Utilities, Newfoundland and Labrador, 1984

NEWFOUNDLAND
COMPOSITION OF SELECTED REFINED PETROLEUM PRODUCT PRICES (ST. JOHN'S) OCTOBER 1985



SOURCE: CRUDE OIL PRICING REPORT, EMR
ENERGY PRICING NEWS, CORPUS

While product prices increased somewhat since May 1985 there have been some decreases since March 1986 as the crude price decline has taken effect.

Table 24
Weighted Average Prices of
Petroleum Products by Census Division
May 1985
(cents/litre)

CENSUS DIVISIONS	REGULAR GASOLINE	UNLEADED GASOLINE	DIESEL FUEL OIL	FURNACE OIL	STOVE OIL
Avalon Peninsula	61.0	63.4	61.7	40.7	42.6
Burin Peninsula	60.7	62.5	62.1	41.1	43.0
South Coast	62.0	64.3	59.6	41.6	43.8
St. Georges	59.8	61.4	62.4	40.3	42.6
Humber District	60.5	62.4	61.4	40.5	42.7
Central Newfoundland	60.4	62.2	61.4	40.8	42.8
Bonavista/Trinity	61.3	63.0	63.2	40.9	43.0
Notre Dame Bay	62.3	64.1	61.6	41.3	43.0
Northern Peninsula	63.9	65.4	64.7	41.0	43.2
Labrador	61.2	60.5	N/A	41.4	49.1
Island Average	61.2	63.2	61.8	40.8	42.8
Provincial Average	61.2	63.1	N/A	40.8	43.0

Source: Annual Cost of Fuel and Utilities, Newfoundland and Labrador, 1985

Table 25
Percentage Change
in Petroleum Product Prices
By Census Divisions
April 1984 - May 1985

CENSUS DIVISION	REGULAR GASOLINE	UNLEADED GASOLINE	DIESEL FUEL OIL	FURNACE OIL	STOVE OIL
Avalon Peninsula	9.3	10.5	11.8	10.3	9.0
Burin Peninsula	8.6	8.3	6.9	10.2	10.0
South Coast	8.6	9.0	1.9	8.6	9.0
St. Georges	8.1	7.9	8.5	9.5	9.0
Humber District	9.2	9.1	8.7	9.8	9.5
Central Newfoundland	9.6	9.7	8.3	9.7	9.2
Bonavista/Trinity	9.3	7.0	7.9	9.7	9.7
Notre Dame Bay	8.5	7.6	8.1	7.3	6.2
Northern Peninsula	10.6	9.7	11.2	5.4	4.6
Labrador	3.6	3.4	N/A	7.8	5.2
Island Average	9.3	9.3	9.6	9.4	8.6
Provincial Average	8.9	9.0	N/A	9.1	8.6

Regular gasoline prices increased an average of 8.9 percent over the period, going from 56.2 cents per litre to 61.2 cents per litre. Residents in the Northern Peninsula experienced the highest price at 63.9 cents per litre while St. George's had the low of 59.1 cents per litre.

The provincial average price of unleaded gasoline increased by 9.0 percent moving from 57.9 cents per litre in April 1984 to 63.1 cents per litre in May 1985. Labrador recorded the low price of 60.5 cents per litre while the Northern Peninsula had the high price of 65.4 cents per litre.

Diesel fuel prices increased by 9.6 percent for the Island (Labrador prices not available) going from 56.4 cents per litre to 61.8 cents per litre. Residents on the South Coast paid the lowest price of 59.6 cents per litre while residents of the Northern Peninsula paid the high of 64.7 cents per litre.

The provincial average price of furnace oil in May 1985 was 40.8 cents per litre or 9.1 percent higher than the previous year. Residents of the South Coast paid the highest price at 41.6 cents per litre whereas St. George's residents paid the lowest at 40.3 cents per litre.

The provincial average price for stove oil increased from 39.6 cents per litre to 43.0 cents per litre, an increase of 8.6 percent from April 1984 to May 1985. The high price of 49.1 cents was recorded for Labrador while the Avalon Peninsula and St. George's had the low of 42.6 cents per litre.

4.1.3 Petroleum Product Prices By Province - Canada

To show how petroleum product prices in Newfoundland compare with those in other provinces, Tables 26 to 29 have been included giving average prices for regular gasoline, unleaded gasoline, automative diesel and furnace oil for the other provinces in Canada (prices for stove oil are not available).

The tables show that in April 1985 Newfoundland had the highest price for all petroleum products. All transportation fuels were priced lowest in Alberta. Prices for regular gasoline ranged from 43.6 cents per litre to 59.4 cents per litre. Unleaded gasoline prices ranged from 45.7 cents per liltre to 61.9 cents per litre and automative diesel fuel prices ranged from 36.2 cents per litre to 61.0 cents per litre. The price of furnace fuel ranged from a low of 37.7 cents per litre in Saskatchewan to a high of 40.6 cents per litre in Newfoundland.

Table 26
Comparative Cost of Regular Gasoline
Provincial Averages

PROVINCE	APRIL 1984 cents/litre	APRIL 1985 cents/litre	PERCENTAGE CHANGE
Newfoundland	54.6	59.4	8.8
Prince Edward Island	54.6	57.0	4.4
Nova Scotia	51.4	57.3	11.5
New Brunswick	49.8	51.7	3.8
Quebec	54.0	55.2	2.2
Ontario	45.2	47.8	5.8
Manitoba	46.8	52.2	11.5
Saskatchewan	41.3	45.9	11.1
Alberta	41.1	43.6	6.1
British Columbia	49.2	54.2	10.2

Source: Statistics Canada

Table 27
Comparative Cost of Unleaded Gasoline
Provincial Averages

PROVINCE	APRIL 1984	APRIL 1985	PERCENTAGE CHANGE
Newfoundland	57.1	61.9	8.4
Prince Edward Island	56.5	58.9	4.2
Nova Scotia	53.2	58.2	9.4
New Brunswick	52.2	53.7	2.9
Quebec	56.9	57.5	1.1
Ontario	47.5	50.4	6.1
Manitoba	48.5	53.2	9.7
Saskatchewan	43.1	47.8	10.9
Alberta	42.9	45.7	6.5
British Columbia	51.1	56.0	9.6

Source: Statistics Canada

Latest information for 1986 shows that oil shock induced product price reductions are lagging behind those in other provinces of Eastern Canada.

Table 28
Comparative Cost of Automotive Diesel Fuel
Provincial Averages

PROVINCE	APRIL 1984	APRIL 1985	PERCENTAGE CHANGE
Newfoundland	55.0	61.0	10.9
Prince Edward Island	56.8	59.4	4.6
Nova Scotia	50.6	55.5	9.7
New Brunswick	50.4	53.4	6.0
Quebec	44.8	50.0	11.6
Ontario	45.9	47.3	3.1
Manitoba	38.9	44.0	13.1
Saskatchewan	39.0	44.2	13.3
Alberta	33.4	36.2	8.4
British Columbia	48.6	47.8	(1.6)

Note: Brackets denote decline
Source: Statistics Canada

Table 29
Comparative Cost of Furnace Oil
Provincial Averages

PROVINCE	APRIL 1984 cents/litre	APRIL 1985 cents/litre	PERCENTAGE CHANGE
Newfoundland	36.8	40.6	10.3
Prince Edward Island	35.4	38.7	9.3
Nova Scotia	34.8	38.3	10.1
New Brunswick	35.5	38.8	9.3
Quebec	35.4	39.2	10.7
Ontario	34.5	38.4	11.3
Manitoba	35.0	38.9	11.1
Saskatchewan	34.2	37.7	10.2
British Columbia	34.4	37.8	9.9

Source: Statistics Canada

4.2 Electricity Prices

4.2.1 Electricity Prices in Newfoundland

Since 1983, up to and including 1985, there were no increases in the basic rates for electricity prices. However, the average annual cost of electric service increased significantly during 1984 and 1985 due to higher fuel adjustment charges during that period. This was due mainly to the relatively poor hydro conditions which necessitated a substantial increase in thermal generation in the period, particularly in 1985.

The following table shows the average percentage increases in annual electric service costs including fuel adjustment charge by rate class in 1984 and 1985.

Rate class 3.1, Electric Heat General Service, experienced the highest increase of 30.9 percent over the 1983 to 1985 period while Street and Area Lighting had the lowest at 17.2 percent. Domestic customers paid an average of 25.9 percent more for electricity in 1985 then they did in 1983. Customers included in rate class 2.1, General Service 0.10 kw, saw prices increase by 18.1 percent while those in rate class 2.2, General Service 10-100 kw, and 2.3, General Service over 100 kw, experienced increases of 21.4 percent and 28.6 percent respectively.

It should be noted that in April 1986, the Newfoundland Public Utilities Commission refused an application by Newfoundland Light and Power Company for a general rate increase. Declining interest rates, declining inflation rates and declining oil prices were cited as factors offsetting other operational cost increases.

Table 30
Newfoundland Light & Power Co. Ltd.
Average Percentage Increases in Annual
Electric Service Costs Including Fuel
Adjustment Charge by Rate Class

RATE CLASS	PERCENTAGE INCREASE 1984 Over 1983	1985 Over 1984	1985 Over 1983
1.1 Domestic	8.9	15.6	25.9
2.1 General Service 0-10 KW	7.2	10.2	18.1
2.2 General Service 10-100 KW	7.2	13.2	21.4
2.3 General Service Over 100 KW	8.2	18.9	28.6
3.1 Electric Heat General Service	15.2	13.6	30.9
3.2 All Electric General Service 0-110 KVA	7.5	14.0	22.6
3.3 All Electric General Service Over 110 KVA	7.4	17.6	26.4
5.1 Street and Area Lighting	8.6	7.9	17.2
All Rate Classes	8.4	15.3	25.0

Source: Newfoundland Light & Power Co. Ltd.

In December, 1985, the Public Utilities Commission approved a rate structure for Newfoundland and Labrador Hydro that eliminated fuel adjustment charges and included extra fuel costs in an overall package.

Effective January 1, 1986, the new rate charged by Newfoundland Hydro to Newfoundland Light & Power Co. for wholesale power is 42.37 mills a kilowatt hour, with provision for an annual adjustment of that rate depending on fuel consumption. The previous basic rate was 28.83 mills plus a separate fuel adjustment charge expected to be 14.59 mills during the year. Under the old system the fuel adjustment charge varied from month to month depending on water levels at Hydro's generating stations and the amount of oil it had to burn to keep up with electricity demand.

A rate stabilization plan has now been included in Newfoundland Light & Power's schedule of rates, rules and regulations. Variations in water conditions or fuel costs are debited or credited to the plan. This way, if there is more rain than expected, for example, the annual rate to consumers will be decreased.

The scheme calls for an automatic adjustment of rates at the end of June every year (beginning in 1987) based on the average amount of fuel used.

4.2.2 Electricity Prices - Major Centres Canada

Table 31 gives countrywide comparisons of electricity prices for small service commercial/industrial accounts. Over the one year period Edmonton consumers experienced the highest increase of 7.9 percent in electricity rates, the highest in the country, while Charlottetown consumers experienced a decrease of 8.6 percent.

In 1985, consumers in Charlottetown paid the highest price of $27.19 per gigajoule while consumers in Winnipeg paid the low of $10.05 per gigajoule. The average price throughout the country equalled $17.23 per gigajoule. Consumer's in St. John's paid slightly more than average at $17.93 per gigajoule.

For the larger consumers, as given in Table 32, the picture was much the same. The highest electricity prices were paid in Charlottetown while the lowest were paid in Winnipeg. St. John's consumers again paid above the average.

Table 31
Comparison of
Electricity Unit Costs
For Commercial/Industrial Accounts
Small Services
Major Centres - Canada
December 1984 and December 1985

	Unit Cost Dec. 1984 ($/gigajoule)	Unit Cost Dec. 1985 ($/gigajoule)	Percentage Change
St. John's	17.64	17.93	1.6
Charlottetown	29.76	27.19	(8.6)
Halifax	22.39	22.39	-
Saint John	18.19	17.55	(3.5)
Montreal	13.73	14.07	2.5
Toronto	16.09	17.24	7.2
Winnipeg	9.54	10.05	5.4
Regina	15.02	15.02	-
Edmonton	15.37	16.58	7.9
Vancouver	13.68	14.23	4.0

- All costs are calculated using the rules for firm power Published by the Electric Utilities.

- Small Service is calculated on the basis of 100-KW demand, 30,000 KWH/monthly energy consumption (Power Factor: 90%).

Source: Energy Pricing News

Table 32
Comparison of Unit
Electricity Unit Costs
For Commercial/Industrial Accounts
Medium - Large Service
Major Centres - Canada
December 1984 and December 1985

	Unit Cost Dec. 1984 ($/gigajoule)	Unit Cost Dec. 1985 ($/gigajoule)	Percentage Change
St. John's	14.59	15.24	4.5
Charlottetown	28.04	25.37	(9.5)
Halifax	16.20	16.20	-
Saint John	15.03	14.18	(5.7)
Montreal	11.08	11.36	2.5
Toronto	13.56	13.18	(2.8)
Winnipeg	7.60	7.99	5.1
Regina	12.08	12.08	-
Edmonton	12.69	13.59	7.1
Vancouver	11.08	11.16	0.7

- All costs are calculated using the rules for firm power published by the Electric Utilities.

- Medium - Large Service is calculated on the basis of 1,000-KW demand, 400,000-KWH/monthly energy consumption (Power Factor: 90%).

- Costs listed here do not provide for discounts offered by some utilities for payment within a specified period.

Source: Energy Pricing News

CONVERSION FACTORS

Kilo = 10^3
Mega = 10^6
Giga = 10^9
Tera = 10^{12}
Peta = 10^{15}

1 megalitre = $10^3 m^3$ (or 1000 cubic metres)
1 B.t.u. = 1.054615 x 10^3 Joules
1 Barrel = .158908 cubic metres
1 Cubic foot = .02832784 cubic metres
1 Ton = .9071847 metric tonnes

Refined Petroleum Products

1 Barrel Liquified Petroleum Gases	= 4.3186 GJ
1 Barrel Aviation Gasoline	= 5.3263 GJ
1 Barrel Motor Gasoline	= 5.5071 GJ
1 Barrel Aviation Turbo Fuel	= 5.7102 GJ
1 Barrel Kerosene	= 5.9870 GJ
1 Barrel Light Fuel Oil	= 6.1458 GJ
1 Barrel Diesel Fuel Oil	= 6.1458 GJ
1 Barrel Heavy Fuel Oil	= 6.6308 GJ

Electricity

1 Giga Watt Hour	= 3600 GJ

Coal

1 Tonne Anthracite	= 29.527 GJ
1 Tonne Canadian Bituminous	= 29.295 GJ
1 Tonne Sub Bituminous	= 19.763 GJ
1 Tonne Lignite	= 15.345 GJ

Non-Energy Products

1 Gigalitre Asphalt	= 44.464 GJ
1 Gigalitre Lubricating Oils and Greases	= 39.155 GJ
1 Gigalitre Naptha Specialties	= 35.173 GJ
1 Tonne Coke	= 28.830 GJ